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ABSTRACT

Whether vocabulary and comprehension skills as measured by a content reading test were more related to achievement than the same skills as measured by general tests was investigated. The subjects were 140 high-school juniors. Also, whether or not there was a significant difference between high and low achievers in the skills measured was assessed using 31 high and 39 low achievers. The author-constructed American History Reading Test was used to measure vocabulary and comprehension skills in the content areas and was compared to the same skills as measured by the Nelson-Denny Reading Test, the Davis Reading Test, and a history achievement test. The total scores of the American History Reading Test were found to correlate higher with history achievement than did the scores of the general reading tests. All the subscores were also closely related to achievement than the general reading scores with the exception of reading for inference. A significant difference was found between the high and low achievers in all the skills measured with the exception of reading for main ideas and reading for inference. It was concluded that a specialized vocabulary of historical terms was highly related to history achievement. References and graphs are given. (Author/DE)

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A COMPARISON OF GENERAL AND SPECIFIC READING SKILLS AS RELATED TO AMERICAN HISTORY ACHIEVEMENT AT THE ELEVENTH-GRADE LEVEL

A THESIS

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OF THE GRADUATE SCHOOL OF EDUCATION

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ABSTRACT

It was the intention of this study to investigate whether specific skills as measured by a content reading test were more related to achievement than the same skills as measured by general tests. Also, whether or not there was a significant difference between "high" and "low" achievers in the skills measured was investigated.

American History was chosen as the content field, and high school juniors as the testing population. The skills being measured were vocabulary and comprehension. A self-constructed American History Reading Test was used to measure these specific skills in the content area, for comparison to the same skills as measured by general tests.

The high and low achievers, comprised of the upper and lower quartiles, totaled 70 students, 31 being high achievers and 39 low achievers. The Pierson product-moment correlation formula was used to establish the coefficients. The t-test technique was used to establish significant differences.

When the findings were analyzed, it was established that the total scores of the American History Reading Test correlated higher with history achievement than did the scores of the general reading tests. Closer observation indicated that all the subscores were also more closely related to achievement than the general

reading scores with the exception of reading for inference.

A significant difference was established between the high and low achievers in all the skills measured with the exception of reading for main ideas and reading for inference.

It was concluded from this study that a specialized vocabulary of historical terms was highly related to history achievement with a significant difference between the high and low achievers at the .01 and .001 levels. It was also concluded that comprehension as measured by the American History Reading Test was moderately related to history achievement and that a significant difference existed between the high and low achievers for total score and reading for details.

It is suggested, based on these findings, that social studies teachers emphasize the development of vocabulary and comprehension skills using their content materials.

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CHAPTER I

INTRODUCTION

Background of the Study

The reading instruction policies of secondary schools range between two points of view. One is that the basic reading skills are general in nature and, as a result, should be developed by the reading teacher or English teacher. The other is that at the secondary level these skills are specific in nature and should be developed under the guidance of the content-area teacher.

Between these "either-or" points of view lies another which holds that the basic skills are both general and specific. Hence, the teaching of reading is a whole-faculty job. According to this point of view, the reading or English teacher has responsibility for developing the general skills and abilities, and the other teachers have responsibility for developing those skills and abilities specific to their own instructional fields, such as social studies.

This study investigates some relationships among general reading skills, selected reading skills specific to social studies, and American History achievement.

Statement of the Problem

Which reading skills are more closely related to American History achievement--general reading skills or specific social studies reading skills?

To investigate this problem, it is necessary:

1. To determine the reading skills necessary for secondary social studies competency.

2. To construct a testing instrument to measure selected social studies reading skills.

3. To determine whether the selected social studies reading skills measured in the testing instrument are more closely related to American History achievement than are general reading skills.

These hypotheses are investigated in this study:

1. The skills of vocabulary and comprehension as measured by the American History Reading Test (self-constructed) are no more related to American History achievement than the same skills as measured by general reading tests for either "high" or "low" achievers.

2. There is no significant difference between the high and low American History achievers for either general vocabulary or the vocabulary as measured by the American History Reading Test.

3. There is no significant difference between the high and low American History achievers for either general

comprehension or the comprehension as measured by the American History Reading Test.

Definition of Terms

For the purposes of this study, these limited definitions need to be recognized.

General Reading Skills are those skills which are measured by the general reading tests used in this study. The Davis Reading Test, for example, tests for the weaving together of the ideas in a paragraph and grasping its central thought.

Social Studies Reading Skills are those skills which are measured by the American History Reading Test used in this study. An example of a social studies reading skill would be comprehension of abstract vocabulary terms specific to social studies.

American History Achievement is the proficiency of competence in American History measured by the Cooperative Social Studies American History Achievement Test.

High Achiever is a student who scored at or above the 75th percentile on the Cooperative Social Studies American History Achievement Test.

Low Achiever is a student who scored at or below the 25th percentile on the Cooperative Social Studies American History Achievement Test.

Limitations

The population for this study is limited to 140 students in their junior year in high school in the suburban community of Bridgewater, New Jersey. This population is about evenly divided between male and female students who are Caucasian and in the middle or upper middle income bracket. This study is limited by the fact that the population is made up of only juniors; therefore, no inferences can be made for other grade levels.

The self-constructed American History Reading Test is standardized only on the testing population. Its reliability is established only in terms of 56 students of the testing population using the subdivided test method as described in Chapter III. It was administered only by the investigator.

CHAPTER II

REVIEW OF THE LITERATURE

General and Secondary Reading

In comparing past issues and innovations in teaching reading in the secondary and elementary schools, it is found that at the secondary level the issues are more obscure and far less hotly contested than at the elementary level. It is also interesting to note that the innovations in secondary reading appear to be far fewer than, and not nearly so colorful as, proposals for the elementary level. Furthermore, research in secondary reading is exceeded by elementary at a ratio of six to one (Burnett, 1966).

Evidence of the lack of research regarding reading and the social studies has been cited by Kling (1966). In analyzing reading research, he divided the categories into pre-1940 and post-1940 and rated the research areas into rank order. The top ranked areas in each era may be seen in Table 1.

It can easily be seen that reading and the content areas have slipped from rank 18.5 pre-1940 to 26.5 post-1940, that reading and history slipped from 9.5 to 30.5,

TABLE 1

RANKING OF RESEARCH AREAS

Pre-1940	Post-1940
Reading interest and habits--1	Diagnosis and treatment --1
Reading and language arts--2	Readability--2
Reading and study skills --3	Reading in high school --3
Reading and mathematics--5	Achievement in reading--5
Reading and history--9.5	Reading and history--30.5
Reading and social studies --13.0	Reading and social studies--21.0
Reading and the content fields--18.5	Reading and the content fields--26.5

and reading and the social studies from 13.0 to 21.0. However, it is interesting to note that while research has been declining in the aforementioned areas, in the decade between 1946-1956 the number of textbook titles in history and the sister area of geography increased more than 150% (Carpentar, 1951).

Smith (1959) asked, "Why teach reading in high school?" She promptly answered her own question with these reasons:

1. Reading skills lend themselves to continuity of growth.
2. This fast moving age demands a speedier and more effective type of reading.
3. Students in high school are not reading as well as they should.

Wagner (1964) contends that many curriculum planners and writers apparently believe that students' success in the content subjects is in a large measure determined by their power to read well. Thus, probably much of the task of bettering instruction in the content areas lies in the improvement of reading abilities. It cannot be denied that time spent with reading materials which students cannot comprehend and appraise is time wasted.

It must be admitted, however, that there are certain difficulties peculiar to secondary reading programs. Among those listed by Green (1951) are:

1. The large number of students with whom the

average secondary teacher has daily contact.

2. The question of a sufficient variety and availability of interest catching materials at various grade levels.

3. Motivation, which is always a challenge in the upper grades.

After acknowledging the above problems, the question must be asked: What should a high-school-wide program include? Bland (1952) proposed five areas for the program.

1. The program should make provision for the poor reader who is retarded a year or more but is able to use books ordinarily assigned to his grade level.

2. The program should provide help for the reader who is seriously retarded and unable to use the books ordinarily assigned to his grade level.

3. The program should emphasize systematic growth in reading.

4. The program should guide reading in the content areas.

5. The program should stimulate interest and elevate reading tastes.

Smith (1959) answered the same question but used a different approach. She indicated eight specific areas to be included in a secondary program. Among the areas mentioned were vocabulary building and word recognition,

getting meaning in reading, study skills in locating information, and speed in reading. In reality, Smith is listing several skills, and this seems to hit the heart of the issue.

Skills are the focal point of the issue as to what should be taught in a secondary reading program. This is also the issue when the program is related to or functioning through the social studies. According to Covell (1957), the findings of several investigations support the general conclusion that, whereas reading ability may function somewhat the same in different subjects, there are certain reading skills unique to each content field studied.

Secondary Social Studies and Reading Skills

Generally, one is considered to be skilled if he possesses a high degree of competence in a trade or profession, a sport, or in school in a subject. The student with the skills is the one who is able to grasp information and insights with little apparent effort. On the other hand, we label as a "slow learner" the student who has few skills--and often consider it impossible for him to achieve proficiency in a subject area.

O'Connor (1967) states that without skills no one can succeed in the social studies. And, without further ado, he continues, "let us admit that the basic social

studies skills are reading skills" (emphasis by O'Connor).

Artley (1948) stated that the implication is clear to all content area teachers that they must be aware of the basic reading skills, abilities and attitudes demanded by their courses, their assignments, or their unit work. Knowing these, the teachers must then hold themselves accountable for developing these specialized abilities, or for seeing that transfer is made from other areas where similar skills are needed.

McCallister (1932) studied the activities of a seventh-grade class and concluded that the students would have to have a substantial number of reading skills to meet with success in the social studies classroom.

The Metropolitan School Study Council (1960) in its pamphlet, Five Steps to Reading Success, stated that much of the work done in the junior and senior high school social studies classes depended upon the use of many different kinds of printed materials. To work with these materials successfully, students would then have to master certain reading skills.

Covell (1957) stated that it should be the responsibility of the social studies teacher to teach the subject matter of reading as it relates to social studies.

Black (1967) concluded that social studies held the dubious distinction for some years of being the most

unpopular academic area in the secondary program. The development of a program for teaching reading skills in the social studies classroom offers an opportunity to help overcome this reputation, since the student who reads effectively and with purpose will be less likely to develop a distaste for what he reads.

Shew (1969) includes a list of skills pertinent to the social studies in his publication. The following is the introduction to his list and is also applicable to Table 2.

> If knowledge is to be put to effective use in terms of productive behavior within our society, there are certain skills that the individual must acquire. The following list is an example of some of the most relevant skills.

It is the intention of Table 2 to present in an orderly fashion the skills mentioned by several authors as being necessary for success in the social studies. The check marks (✓) indicate the particular skills mentioned by each author.

Test Construction

The construction of a worthwhile and effective test hinges on two important areas: (1) the planning of the test; and (2) the construction of valid, reliable test questions (Carruthers, 1963).

The Educational Testing Service (1959) indicates that there are several basic rules which should almost

TABLE 2

SOCIAL STUDIES READING SKILLS

	Shew, '69	Witty, '62	Lackey & Rollins, '65	Edgar, '65	Fraser & West, '61	Joyce, '61	Dollmann, '60	Briggs, '58	Covell, '57	Sawyer, '56	Johnson & Burcy, '56	O'Connor, '67	Sochor, '53	Strang, '66	Smith, '59	Anderson, '65	Bond, '40	Artley, '42	McCallister, '32	Metro. Council, '60	Smith, '63	Triggs, '59	Johns & Fraser, '63
Specialized vocabulary	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓				✓	✓			✓	✓	
Abstract vocabulary (metaphorical)						✓		✓	✓														
Context clues						✓						✓											
Reading for details	✓			✓	✓							✓	✓	✓	✓	✓		✓					✓
Main ideas				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓
Critical reading	✓	✓	✓	✓		✓		✓				✓				✓				✓	✓		✓
Relationship between facts		✓										✓						✓					
Distinguishing facts from opinion	✓		✓			✓	✓					✓	✓					✓					
Maps, graphs, charts, indices				✓	✓							✓	✓	✓	✓	✓	✓						✓
Cause--effect; time sequence					✓		✓		✓			✓	✓			✓					✓		✓
Tone, mood, purpose of author												✓	✓								✓		
Inference and interpretation			✓						✓		✓		✓						✓		✓	✓	
Concepts		✓																		✓			
Locating and organizing information	✓	✓		✓	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓					✓
Use of source materials	✓	✓			✓		✓			✓	✓		✓	✓					✓				
Recall of information			✓			✓						✓		✓								✓	

always be followed. First, have the purpose of your test clearly in mind. In the case of the American History Reading Test, the purpose was assessment of specific reading skills. Next, a careful plan for the test questions should be developed. If the test is mainly diagnostic in a basic skill area (as the American History Reading Test may be considered), at least 10 items should be prepared for each subtest that is used.

Crow, Ritchie, and Crow (1961) assert that two important aspects which need to be considered are the validity of the test--the extent to which the test measures what it purports to measure--and the reliability of the test--the degree of similarity of response that can be expected from the same individuals.

Thorndike and Hagen (1967) indicate there are four possible roles for the teacher-made test: (1) evaluation of student progress, (2) diagnosis of weaknesses and provision for practicing available knowledges and skills, (3) definition of teacher objectives, and lastly (4) differentiation and certification of students.

Thorndike and Hagen (1967) comment on the multiple-choice type question:

> The multiple-choice item is the most flexible and the most effective of objective item types. It is effective for measuring information, vocabulary, understandings, application of principles, or ability to interpret data. In fact, it can be used to test

> practically any educational objective that can be measured by a paper-and-pencil test except the ability to organize and present information. The versatility and effectiveness of the multiple-choice item is limited only by the ingenuity and talent of the item writer.

To the inexperienced teacher, a short-answer item appears easy to construct and does not seem to have any of the pitfalls of the essay question. Unfortunately, this is not true. The fact that an item can easily be scored is no guarantee of its validity or its reliability. Constructing a good item is a challenging task. The teacher will need to use all his skills in expressing ideas clearly and accurately (Carruthers, 1963).

Carruthers also comments on the favorability of the multiple-choice type question. In summary, he states that it can function in almost any kind of test situation. He writes:

> A multiple-choice item can effectively be used to test knowledge of facts and to test more complex outcomes: appreciation, analysis, and understanding at various levels. Its applicability ranges from an item asking a student to discriminate among five ways of expressing an idea to apply principles of writing, to understand basic themes of a selection of poetry, to recognize subtleties in an author's style, to draw inferences, and to perform similar operations. The outstanding characteristic of a multiple-choice item is, then, its <u>adaptability</u>.

Shores (1938) chose this type of test question when measuring various reading skills to be compared to eighth-grade achievement. He built this type of question to measure vocabulary and comprehension using historical

materials of that time.

In summary, the multiple-choice item is considered flexible enough to measure a wide variety of skills and knowledges and has been used in the past to measure specific reading skills.

Studies Related to Content Fields and Reading Skills

Tinker, as early as 1932, saw the importance of appraising the skills and abilities that enter into the comprehension in each subject matter area with a test having a similar content to that of the field being tested.

Wrightstone (1941) contended that, on the basis of the then existing information, different comprehension tests seemed to measure different aspects of reading comprehension.

One of the earliest studies dealing with the question of reading skills and achievement was completed by Lee (1933). Working on the elementary level, Lee studied the relationship of students' reading abilities to a special interpretation of their achievement in other school subjects. (The interpretation of achievement for her study was the difference between students' actual achievement and what they were capable of doing as measured by an intelligence test.) The students' reading abilities were compared with their actual achievement in grades four, five, and six. It was concluded that reading ability was an important

factor in the upper grades of the elementary school.

Eva Bond (1938) initiated an investigation for the purpose of determining the relationship between various reading skills and scholastic achievement on the ninth-grade level. The reading skills investigated consisted of comprehension, word meaning, location of information, rate, and paragraph organization. The achievement areas consisted of English (usage and spelling), literary acquaintance, general science, elementary algebra, general mathematics, and Latin. Among the highly significant relationships established in this study were:

1. Reading comprehension to achievement in English, general science, Latin, and composite ninth-grade work.

2. Power of comprehension to achievement in English, general science, and composite ninth-grade work.

3. Ability to locate information to achievement in English, algebra, and composite ninth-grade work.

Among the significant relationships were:

1. Reading comprehension to achievement in algebra.

2. Ability to locate information to achievement in general science and general mathematics.

Among the relationships which were not significant were:

1. Reading comprehension to achievement in general mathematics.

2. Power of comprehension to algebra, general mathematics, and Latin.

3. Ability to locate information to achievement in Latin.

It seems to be evident in this study that the type of reading skills needed for optimum achievement in any subject matter area varies with the subject matter area.

Elden Bond (1940) investigated tenth-grade abilities and achievements. The reading skills measured consisted of: reading comprehension, reading vocabulary, reading speed, location of information, map-graph reading, newspaper reading speed, and knowledge of periodicals. Included in the achievements studied were: English usage, literary acquaintance, spelling, history, geometry, and biology. The correlations most pertinent to the present study were those compiled with history. They were:

Intelligence quotient	.586
Reading comprehension	.567
Reading vocabulary	.572
Combined reading speed	.347
Location of information	.451
Map-graph reading	.487

It is easily seen that among the highest correlations with history were the general reading skills of comprehension

and vocabulary.

Shores (1938) appears to have been the first to have studied the relationship between historical reading abilities, general reading abilities, and history achievement, in this case on the eighth-grade level. One of the problems of specific interest was to determine the significance of the difference between reading ability as measured by subject matter reading tests and reading ability as measured by general reading tests. Shores used the "matched control" type research in his investigation, with comparison of the differences between upper and lower groups accomplished for each of the reading activities measured in the investigation. Groups divided on the basis of historical reading materials showed significant differences on all of the separate measurements with reading activities. The best historical readers were definitely superior to the poorest readers of history in every proficiency measured. In general, Shores found:

1. Ability to read historical materials seems of more value to achievement in history than to other achievements measured.

2. General reading ability may be a greater asset to achievement in literature than to the other measured achievements.

3. A good historical vocabulary seems to be a

close comparison to all measured reading abilities except speed of reading.

4. Similarities between the group differences with historical materials and Traxler reading tests may indicate a probable close relationship between historical and general reading ability. However, even though the scores are closely related, each of the reading materials had individual peculiarities.

It was concluded, based on the findings, that both historical and general reading abilities are closely related to the achievements measured. However, while these abilities appear to be closely related to each other, they still possess some unique aspects of their own.

Artley (1942) studied certain relationships existing between general reading comprehension and comprehension in a specific subject matter. Among the purposes of his study was to determine the relationship between scores purporting to measure abilities related to comprehension in a specific subject matter area, and scores on a test designed to measure a more general type of reading comprehension. The field of social studies was chosen as the specific subject matter area. Among his findings were:

> A coefficient of correlation of .75 was found to exist between the measures of reading comprehension

of a specific nature and general reading comprehension.

The relative importance of certain factors assumed to be components of reading comprehension in the social studies were indicated in the beta weights presented below:

social studies vocabulary	.432
general reading vocabulary	.396
ability to interpret	.277
ability to obtain facts	.277
ability to organize	.274
ability to perceive logical relations	.228
ability to apply generalizations	.166
ability to evaluate arguments	.127

Among the conclusions Artley developed were:

> The extent of relationship that exists between tests of general reading comprehension and reading comprehension in a specific subject matter area makes it appear that, in general, ability to read material of a general informative type is associated with the ability to read a type of material more directly related to specific content area.
>
> The absence of a near perfect correlation between measures of general and specific reading comprehension provides evidence that there exists a high degree of specificity in the factors relating to reading comprehension in a specific subject matter area.
>
> The abilities measured by tests of general and specific nature in reading comprehension appear to be present to an equal extent on an informative test of achievement in the social studies.
>
> A knowledge of word meaning of both a general and specific nature, the ability to interpret, to obtain facts, and to organize appear to contribute most to the ability to comprehend social studies material.

Covell (1955) studied the characteristics of good and poor readers of social studies materials at the eleventh-grade level. Based on standardized tests, he isolated the 10 "best" and the 10 "poorest" readers of social studies materials from a sample of 101 students. Intensive case studies were then conducted on each of

the 20. It was the intention to determine the relations between the ability to read social studies materials and intelligence, socioeconomic status, personality, and finally certain other aspects as measured by the SRA Reading Record total score and each of the subtests. Among the findings were:

Good Readers of Social Studies Materials:

are concentrated in the extreme upper percentiles in general reading ability.

have a pattern of strength in the paragraph and sentence meaning, technical and general vocabulary aspects of general reading.

are almost certain to be able to pick out specific details from social studies materials. . . .

are almost certain to be skillful at selecting the main ideas of social studies reading materials.

are equally likely to have an average or an above average vocabulary both in range and depth.

are equally likely to have or not have a good grasp of the use of metaphorical language used in the social studies.

Poor Readers of Social Studies Materials:

are concentrated in the lower percentile ranks in general reading ability.

are quite likely to be able to pick out easy significant details from social studies materials two to four grades below their grade level in reading difficulty.

are almost certain to be very weak in selecting the main idea of social studies materials.

are quite likely to be weak in understanding implied meanings.

Among the conclusions reached by Covell were that good social studies readers have a good technical and general vocabulary, display strength in sentence and paragraph meaning of general reading ability, excel in rate, interpretation of map-table-graph comprehension, index usage, and general reading ability plus being strong in choosing main ideas, understanding implied meanings, and selecting details from social studies reading selections. On the other hand, poor readers of social studies materials were found to be in the negative aspects of all the aforementioned categories.

In summary, it can be seen that research in the secondary area is declining at an alarming rate. New proposals and insights are few if any.

Reading investigations related to the content areas have produced few significant studies in the past years. Literature now seems to offer only the "how to do it" type articles. The question still remains, How to do what? Authors list skills to be included in this and that content area, but a model is not available for a single content area.

Related studies in the past produced the basic conclusions that reading skills are related to achievement in the various content areas. A few studies have investigated specific skills measured with specific

materials as related to one particular content area. These studies have indicated that these skills are also related to the achievement being measured.

The present study is an attempt to tie together the above areas by producing worthwhile insights into secondary reading, using American History as the content area and relating the specific skills of vocabulary and comprehension and various subskills to that particular achievement. Hopefully, this is the first step toward isolating particular skills in that area leading toward a model of all the necessary skills needed for achievement.

CHAPTER III

PROCEDURE

This chapter deals with the construction of the American History Reading Test, the establishment of its reliability, its administration, other tests used in the study, the subjects, and the method of analysis of the data.

Construction of the American History Reading Test

The American History Reading Test was constructed to measure some of the skills listed in Table 1. These skills were chosen for inclusion on the basis of the number of times they were mentioned in the literature as shown in Table 1 and also on the basis of their importance as indicated by Artley (1948).

The test was constructed from typical high school American History textbook materials. It is divided into two parts: vocabulary and comprehension.

The vocabulary yields subscores of abstract and non-abstract word knowledge. By abstract is meant words or phrases with meanings apart from material objects. In contrast to this is the non-abstract section in which words or phrases have meanings founded or associated

with material objects.

The comprehension section of the test is composed of 10 selections followed by multiple-choice questions, totaling 40 items. These multiple-choice questions test for main ideas, inference, and detail. The selections on this part of the test were derived from historical materials; however, names, places, and dates have been changed in some instances to preclude previous knowledge. The list of sources from which materials were adapted is given in Appendix II.

In summary, the test items consisted of 25 abstract items and 45 non-abstract items totaling 70 words in the vocabulary section of the test. The comprehension section of the test was comprised of 40 total items, including 20 for details, 10 for main ideas, and 10 for inference.

Establishment of Reliability

The reliability of the test was established by using a subsection of the study population which consisted of 56 students. The subdivided test method was used to establish the reliability of each of the sections of the test.

The vocabulary section of the test was divided by the odd-even method. This rendered 35 items for the computation of reliability.

The comprehension section of the test was not divided on the odd-even method. It was felt that to do this would not yield two sections or scores of equality. This is necessarily so because item 1 always measured the main idea whereas item 3 always measured for detail. The inequality would result from the fact that whereas item 2 always measured for detail, item 4 always measured for inference. Thus, it was desirable not to intermix the skills based on the odd-even method. Therefore, the section was evenly divided, the first 20 items and the last 20. This resulted in each division having the same number and types of items. It should also be noted that since the test is not speeded, all students had the opportunity to complete all 40 items.

Reliability was then established by using this formula (Cronbach, 1960):

$$r_{11} = 2 \left(1 - \frac{Sa^2 + Sb^2}{St^2} \right)$$

where Sa, Sb = standard deviation of half tests

St = standard deviation of full test.

The resulting reliability correlations were:

Vocabulary	.90
Comprehension	.84

Administration of the Test

The test was developed in two sections, vocabulary and comprehension, and as such was administered by the investigator in two separate sessions on June 4 and 5, 1970. It was expected that neither section of the test would take longer than one class period and such was the case. As regards those students absent for one or the other section of the test, where possible the test was administered on the day of their return to school. Those students who were unable to complete all the tests for the study were eliminated from the study population.

The American History Reading Test and a sample answer sheet appear in Appendix I.

Other Tests Used in the Study

In addition to the American History Reading Test, three other tests were used in this study: the Nelson-Denny Reading Test, the Davis Reading Test, and the Cooperative Social Studies American History Achievement Test.

The revised forms of the Nelson-Denny Reading Test were used for this study. These forms are designed to measure the reading skills of vocabulary and comprehension on the secondary level (9-12). Form A of the test was used for this study. The test was chosen because it is one of the basic reading tests used widely on the secondary level.

The Davis Reading Test is available in four equivalent forms in each of two series. Series 1, Form A, was chosen for this study. Each of the forms in series 1, designed for grades 11 and 12 and the freshman year of college, provides two scores: Level of Comprehension and Speed of Comprehension.

The level score indicates the depth of understanding displayed by a student in reading the kinds of materials he is ordinarily required to read in high school and college.

The test is designed to measure five categories of reading skills:

1. Finding the answer to questions answered explicitly or in paraphrase in a passage.
2. Weaving together the ideas in a passage and grasping its central thought.
3. Making inferences about the content of a passage and about the purpose or point of view of its author.
4. Recognizing the tone and mood of a passage and about the literary devices used by the author.
5. Following the structure of a passage.

The Cooperative Social Studies American History Achievement Test is designed to measure achievement in American History on the secondary level. Form A was chosen for this study. The test was selected because it is widely used in assessing achievement in American History on the secondary level and also because it is

one of the most recent editions of this type test, having a copyright of 1964.

Subjects

The study population consists of a total of 140 students in their junior year in high school in the suburban community of Bridgewater, New Jersey. This population is about evenly split between male and female students who are Caucasian and in the middle and upper middle income bracket. All participating students were currently enrolled in an American History course at the time of testing. Those students not able to complete all tests used for the study were eliminated from the study population.

Method of Analysis

The total N (140) students was divided into two groups using the Cooperative Social Studies American History Achivement Test as the criterion. The groups were designated as "high" achievers and "low" achievers. The high achievers were made up of the group of students who scored at or above the 75th percentile, while the low achievers consisted of those students who scored at or below the 25th percentile.

These two groups were then compared using the *t*-test technique to establish that there was a significant

difference between them on the criterion test at the .05 level.

The total N of the two groups (70) was then used to establish correlations between American History achievement and the skills being measured, i.e., general vocabulary and general comprehension, and vocabulary and comprehension as measured by the American History Reading Test. The Pierson product-moment correlation formula was used to establish the coefficient correlation (Thorndike, 1967). The formula is:

$$r = \frac{\frac{\Sigma fx'y'}{N} - \left(\frac{\Sigma fx'}{N}\right)\left(\frac{\Sigma fy'}{N}\right)}{\left(\sqrt{\frac{\Sigma f(x')^2}{N} - \left(\frac{\Sigma fx'}{N}\right)^2} \times \sqrt{\frac{\Sigma f(y')^2}{N} - \left(\frac{\Sigma fy'}{N}\right)^2}\right)}$$

Correlations were developed between the criterion test and:

Nelson-Denny vocabulary
Nelson-Denny comprehension
Davis level of comprehension
American History total vocabulary
American History abstract vocabulary
American History non-abstract vocabulary
American History total comprehension
American History comprehension, main ideas
American History comprehension, details
American History comprehension, inference

After the coefficients were established, the scores of each of the tests given for each of the two groups were checked to establish whether or not a significant difference existed. The formula used for the

t test was (Ferguson, 1966):

$$t\ .05 = \frac{S\bar{x}^2 t_1 + S\bar{x}^2 t_2}{Sx_1^{\,2} + Sx_2^{\,2}}$$

This formula indicates the approximate value of t required for significance at the 5% level.

Using the following formula (Ferguson, 1966), the level of significance was checked for each of the 10 groups as listed above.

$$t = \frac{M_1 - M_2}{\sqrt{S.D._1 + S.D._2}}$$

These procedures lead to the findings presented in the following chapter.

CHAPTER IV

FINDINGS AND DISCUSSION

It is the intention of this chapter to present the data which were established by the method of analysis given. The breakdown into percentiles will be followed by the establishment of the significant difference in the criterion test, the correlation coefficients, and the significant differences in the tests used to measure the skills. Then these findings will be discussed.

Background of Correlations

The total N of 140 students was divided into two groups designated as high and low achievers. The high achievers consisted of 31 students who scored at or above the 75th percentile on the criterion test. The low achievers consisted of 39 students who scored at or below the 25th percentile on the criterion test.

These two groups with an N of 70 were then compared using the *t*-test technique to establish whether or not a significant difference in fact did exist.

From the data in Table 3, a significant difference at the .05 level was found to exist.

TABLE 3

COMPARISON OF HIGH AND LOW ACHIEVERS

	N	Range of scores	Mean	Standard deviation
High	31	45-64	51.43	5.28
Low	39	9-27	21.22	5.07

Correlations of Skills to History Achievement

Having established that the groups were significantly different, correlation coefficients for each of the skills measured were then calculated. For this procedure, the two groups were combined using an N of 70 for the calculations. The coefficients were established between the criterion test (Cooperative Social Studies American History Achievement Test) and each of the other tests used for this study. The findings are presented in Table 4.

As shown in Table 4, higher correlations were established by the reading skills as measured by the American History Reading Test with American History achievement, with the exception of reading for inference, than with the same skills as measured by the general reading tests. It is also noted that there existed a significant difference between the scores of the high and low achievers in all the skills measured with the exceptions of reading for main ideas and reading for inference as tested

TABLE 4

CORRELATION OF READING SKILLS TO HISTORY ACHIEVEMENT

Test	Correlation coefficient with criterion test	High		Low		Sig. diff. at .05 or better
		M	S.D.	M	S.D.	
Nelson-Denny vocabulary	.71	50.83	9.78	26.62	9.63	.001
Nelson-Denny comprehension	.70	48.52	14.58	20.77	7.71	.001
Davis level of comprehension	.75	24.04	3.96	11.26	5.10	.001
American History total vocabulary	.88	53.26	7.05	33.22	7.05	.001
American History non-abstract	.93	38.17	4.41	21.70	5.37	.001
American History abstract vocabulary	.96	19.86	3.38	11.78	2.58	.01
American History total comprehension	.83	35.08	2.92	25.12	4.04	.001
American History main ideas	.76	9.58	.50	7.51	1.25	.20
American History inference	.65	8.03	1.23	5.97	1.25	.20
American History details	.79	17.54	2.24	11.62	2.38	.01

by the American History Reading Test. Sample calculations for Table 4 are shown in Appendix III.

Examining the findings, it is observed that general vocabulary as measured by the Nelson-Denny Reading Test correlates .71 with American History achievement. The average or mean score for the high achiever was 50.83 in comparison to the low achiever who only answered on the average of 26.62 items correctly. A significant degree of difference was established for this skill at the .001 level.

The Nelson-Denny measure of general comprehension was found to correlate .70 with American History achievement. The average number of items answered correctly by the high achievers was 48.52 in comparison to only 20.77 by the low achievers. Again a significant difference was found to exist at the .001 level.

The Davis comprehension score, which is also a measure of general comprehension, correlated .75 with American History achievement. The high achievers on this test averaged 24.04 items correct while the low achievers averaged only 11.26 items correct. Once again a significant difference was established at the .001 level.

In terms of the skills measured by the general reading tests, it can easily be observed that the correlations were in the moderate range, indicating some degree

of relationship between general skills and history achievement.

Vocabulary as measured by the American History Reading Test when considering the total score was found to correlate .88 with American History achievement. The high achievers averaged 53.26 items correctly answered in comparison to the low achievers who averaged only 33.22 items correctly answered. The difference in these scores was found to be significant at the .001 level of significance.

The vocabulary section of the American History Reading Test was subdivided into two parts as previously indicated. When considering the section measuring non-abstract vocabulary, a correlation of .93 was established. The high achievers answered 38.17 items correctly in comparison to 21.70 for the low achievers. Again a significant difference at the .001 level existed.

The abstract vocabulary section of the American History Reading Test when correlated with achievement produced a .96 coefficient. In this section of the test, the low achievers answered 11.78 items correctly on the average in comparison to 19.86 for the high achievers. At the .01 level of significance, a significant difference was found to exist.

Comprehension as measured by the American History

Reading Test when considering the total score correlated .83 with history achievement. The high achievers answered 35.08 correctly on the average compared to 25.12 for the low achievers. At the .001 level a significant difference was established.

Breaking comprehension into the subsections as measured by the American History Reading Test, reading for main ideas correlated .76 with history achievement. The high achievers averaged 9.58 items correct while the low achievers scored 7.51 on the average. In this particular section of the American History Reading Test, a significant difference was not established at the .05 level.

Reading for inference as measured by the American History Reading Test correlated .65 with history achievement. The high achievers scored on the average 8.03 items correct while the low achievers answered 5.97 items correctly. Again, a significant difference was not able to be established at the .05 level of significance.

Reading for detail as measured by the American History Reading Test when correlated with history achievement produced a coefficient of .79. Once again the high achievers scored significantly higher at the .01 level with an average score of 17.54 items correct, while the low achievers scored only 11.62 items correct.

Discussion: Analysis of Correlations

As is easily seen, the scores of the American History Reading Test correlate higher with American History achievement than do the scores from the general reading tests. This supports the outcome of Shores (1938) in which the same basic findings were evident.

The fact that the general reading skills were moderately related to achievement also supports the conclusions of Lee (1933), Eva Bond (1938), Eldon Bond (1940), Artley (1942), and Covell (1955).

The conclusion may also be drawn from this study that even though a high correlation of all the skills exists with history achievement, there is something unique about each of the skills measured.

When observing the high correlations of history vocabulary and the subscores of abstract and non-abstract vocabulary, it could be said that the highest achievers also have the best developed vocabulary.

This finding also supports Covell (1955) who found that the 10 "best" social studies readers had a good technical and general vocabulary. Artley (1942), when establishing the relative importance of social studies reading comprehension, found that social studies vocabulary and general vocabulary were the most important components. Shores (1938) concluded that a good historical vocabulary

seemed to be a close comparison to all measured reading abilities in his investigation. The same basic conclusions were arrived at by Bond (1940).

Thus, the statement can be made that while the highest achievers in history possess the most developed vocabulary, the lowest achievers have a limited vocabulary.

These findings point up the obligation of the social studies teacher, especially the teacher of American History, to develop the subject-related vocabulary. Vocabulary development is the most essential skill related to achievement in that area; therefore, the teacher needs to take definite steps to develop this skill. In this case, the English teacher or reading teacher cannot do the job; the social studies teacher must do it.

In terms of the American History Reading Test, there is possibly some room for discussion on what is an "abstract" and a "non-abstract" word. The basic definitions of each have already been given. Possibly in examining the vocabulary items one might argue that some of the words included in the non-abstract section (questions 1-45) are possibly abstract and, vice versa, that some of the items (46-70) are really non-abstract. Possibly such criticism can be entertained. This was a subjective attempt to subdivide the overall skill of

specialized vocabulary into two component parts, abstract and non-abstract, for the first time for the purpose of investigation.

Another basic conclusion cited by the related studies is that reading comprehension is also closely related to achievement in various subject matter areas. Lee (1933) and Bond (1938) established relationships purporting to show this. It also has been shown by Tinker (1932), Wrightstone (1941), Shores (1938), and Artley (1942) that subject-related comprehension tests seemed to measure different aspects of reading comprehension. The same conclusion is true of the aggregate comprehension score of the American History Reading Test for this investigation. This test correlated higher with American History achievement than did either of the two general reading comprehension tests. Thus, the conclusion is asserted that subject-related comprehension tests do measure different aspects of reading comprehension.

When the subscores of the American History Reading Test, comprehension section, are examined, some interesting results are observed. It is noted that reading for detail correlated highest (.79) with history achievement in comparison to reading for main ideas (.76) and reading for inference (.65). Although these are not extraordinarily high correlations, some relationship between them and

achievement does exist. It is also noted that only in the case of reading for detail is there a significant difference between the scores of the high and low achievers.

The comprehension section of the test was considered reliable, having a .84 reliability coefficient. Based on the skills needed for social studies as indicated in the literature, selecting the main ideas and reading for inference w re quite important. However, the findings of this study did not conclusively prove this to be the case. This could have possibly resulted from the length of the two sections of the comprehension test, each numbering only 10 items. While a tendency is present for the higher achievers to score higher when reading for main ideas and inference, a significant difference did not exist between the high and low achievers in either of these parts of the test.

A second possibility concerns the Cooperative Social Studies American History Achievement Test and the type of achievement it is measuring. There is a definite possibility that the achievement test was not measuring the type of achievement which depended upon main ideas and inference as much as knowledge of details. This brings into perspective the major question: What is American History achievement? Quite possibly history

achievement is more than knowledge of details, and this may be inferred from all the other skills listed for history. However, it seems that an achievement test has not been fully developed up to this time to take into consideration these other skills and types of achievements. For this reason, the reading skills of main ideas and inference should not be discounted from the overall picture of the skills related to American History achievement.

In summary, the findings of this study correspond in most respects to the findings of the studies cited in the review of literature. With respect to the American History Reading Test, the findings seem to indicate a very high correlation of specialized vocabulary to history achievement and a high correlation of the total comprehension score to achievement.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

It was the intent of this investigation to determine the relationship of general vocabulary and comprehension and American History vocabulary and comprehension to American History achievement for high and low achievers of this subject matter area. The study also investigated whether or not a significant difference existed between the high and low achievers in the skills measured.

To investigate these points, a criterion achievement test was selected as were general reading tests. To test or measure the specific skills of history vocabulary and history comprehension, a reading test was self-constructed using American History materials.

A total of 140 students in their junior year in high school participated in the study. This N was divided into two parts, high and low achievers, using percentile scores from the Cooperative Social Studies American History Achievement Test.

A group of 56 of the original 140 students was used to establish the reliability of the American History

Reading Test. The correlations were .90 for vocabulary and .84 for comprehension.

The N of 70 students, total high and low achievers combined, was used to establish the correlation coefficients of all the reading skills measured to the Cooperative Social Studies American History Achievement Test.

The scores of each of the reading skills measured were then compared using the t-test method for the high and low achievers.

The resulting statistics indicated that general reading ability is moderately related to American History achievement whereas the same skills measured using American History materials were highly related to history achievement.

This led to the conclusion that there are unique differences between comprehension and vocabulary as measured by general reading tests and the same skills as measured by the American History Reading Test.

The highest correlations resulted from history vocabulary and the two subsections of abstract and non-abstract word meanings. This led to the conclusion that it is the responsibility of the history teacher to insure that vocabulary is developed in the history classroom. This is especially evident when it is realized that a significant difference in scores existed between the high

and low achievers in all areas of vocabulary measured.

High correlations were established between the total comprehension score of the American History Reading Test and history achievement. Again this would indicate that an effort must be made by the history teacher to develop reading skills along with history content. It was noted that significant differences did not exist between the scores of the high and low achievers for reading for main ideas and reading for inference. However, there was a significant difference in reading for details. This was interesting since the first two skills are also considered to be an important part of American History achievement. Possible reasons for this lack of significant difference was the length of the test items themselves, only 10, and the type of history achievement being measured by the criterion test.

Conclusions

The high and low achievers were shown to be significantly different, based on the criterion test. Using these two groups, coefficient correlations were then established with all the testing instruments used in the study in conjunction with history achievement.

Hypothesis one, the skills of vocabulary and comprehension as measured by the American History Reading Test (self-constructed) are no more related to American

History achievement than the same skills as measured by general reading tests for either "high" or "low" achievers, was proved to be wrong.

The skills of vocabulary and comprehension as measured by the American History Reading Test were more related to American History achievement than the same skills as measured by general reading tests for "high" and "low" achievers.

This is true when the total scores for each section of the American History Reading Test are considered in comparison to the scores derived from the general reading tests. Whereas general vocabulary as measured by the Nelson-Denny Reading test correlated .71 with American History achievement, vocabulary as measured by the American History Reading Test correlated .88 with the same history achievement test.

Comprehension as measured by the American History Reading Test correlated .83 with history achievement whereas general comprehension as measured by the Nelson-Denny Reading Test correlated only .70 and general comprehension as measured by the Davis Reading Test .75 with history achievement.

Each of the sections of the American History Reading Test with the exception of reading for inference correlated higher with history achievement than any of the

scores from the general reading tests.

Reading for inference correlated only .65 with history achievement whereas the other comprehension skills, main ideas, and reading for detail correlated .76 and .79, respectively. The vocabulary skills correlated very highly with history achievement. Abstract vocabulary yielded a coefficient of .96 and non-abstract vocabulary a coefficient of .93.

Thus, it has been established that the reading skills of vocabulary and comprehension as measured by the American History Reading Test are more related to American History achievement than the same skills as measured by general tests for both the high and low achievers.

The second hypothesis, which stated that there is no significant difference between the high and low American History achievers for either general vocabulary or the vocabulary as measured by the American History Reading Test, was also proved to be wrong. In all measures of vocabulary there was a significant difference in the mean scores of the high and low achievers. This seems to indicate that the skill of vocabulary is necessary for high achievement in American History. It should be remembered that general vocabulary is moderately related to achievement so therefore is relatively

important to the success of the student in history achievement. However, the key is history vocabulary which is highly related to achievement and significantly different between the high and low achievers.

The third hypothesis, which stated that there is no significant difference between the high and low American History achievers for either general comprehension or the comprehension as measured by the American History Reading Test, was proved to be only partially incorrect. There is a significant difference for general comprehension between the high and low achievers. There was also a significant difference for the total comprehension score as measured by the American History Reading Test. A significant difference was also noted for the section of the American History Reading Test measuring reading for detail. However, the hypothesis proved to be correct when considering the skills of reading for the main ideas and reading for inference as measured by the American History Reading Test. A significant difference was not established at the .05 level for either of these skills.

Suggestions for Further Research

Based on the findings of this investigation, further research seems advisable.

Other reading skills have been listed as being pertinent to American History and social studies, e.g., map-graph-chart reading. Tests could be developed to establish their relationship to history achievement.

Possibly the development of a model of the reading skills needed for history and social studies could indicate the hierarchy of the skills as related to achievement.

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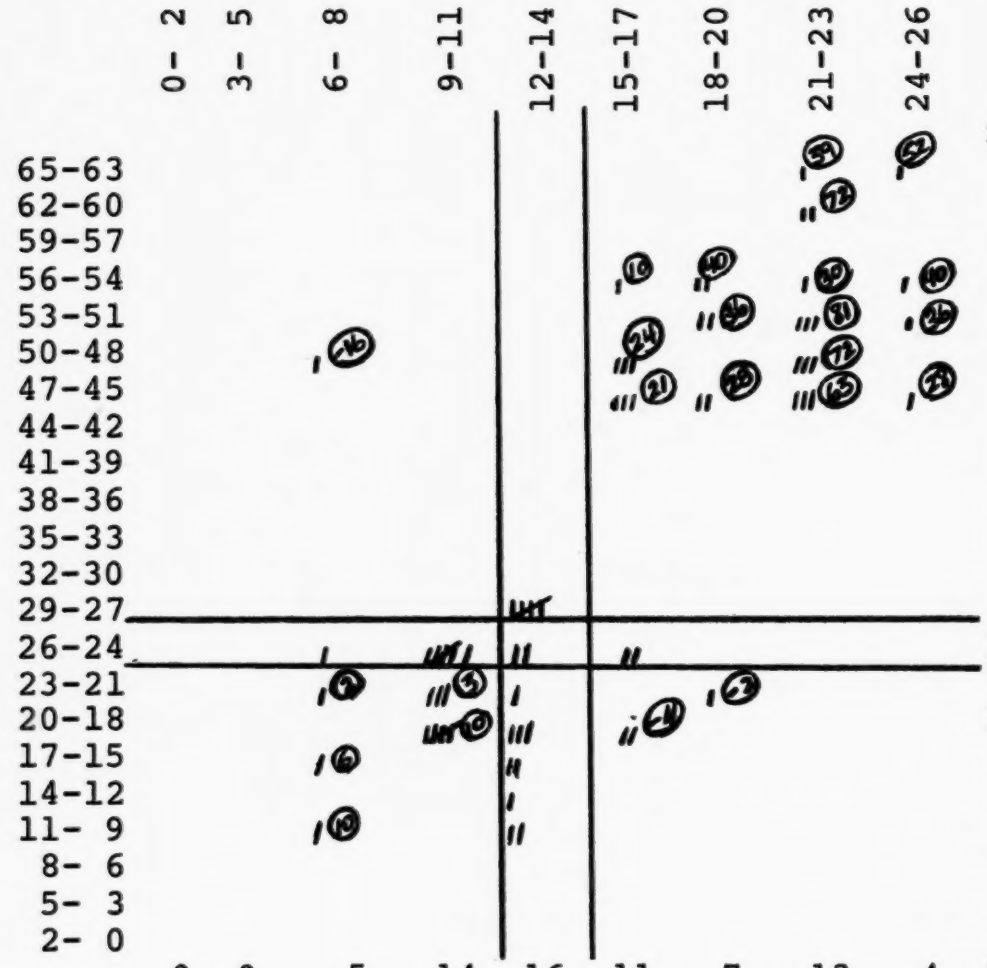
APPENDIX III

SAMPLE CORRELATIONS OF FORMULAS

USED IN THE STUDY

SCATTER GRAPH OF ABSTRACT VOCABULARY SCORES



	fy	y'	fy'	$f(y')^2$	fy'x'
65-63	2	13	26	338	91
62-60	2	12	24	288	72
59-57	0	11	0	0	0
56-54	5	10	50	500	120
53-51	6	9	54	486	153
50-48	7	8	56	441	80
47-45	9	7	63	0	140
44-42	0	6	0	0	0
41-39	0	5	0	0	0
38-36	0	4	0	0	0
35-33	0	3	0	0	0
32-30	0	2	0	0	0
29-27	5	1	5	5	0
26-24	11	0	0	0	0
23-21	6	-1	-6	6	3
20-18	10	-2	-20	40	6
17-15	3	-3	-9	27	6
14-12	1	-4	-4	16	0
11- 9	3	-5	-15	75	10
8- 6	0	-6			
5- 3	0	-7			
			224	2665	681

fx	0	0	5	14	16	11	7	13	4
x'			-2	-1	0	1	2	3	4
fx'			-10	-14	0	11	14	39	16
$f(x')^2$			20	14	0	11	28	117	64

29

80

The following calculations serve as a sample of the operations which produced the statistics in Chapters III, IV, and V.

75th percentile

	f	x'	fx'	$f(x')^2$
25-24	4	4	16	64
22-23	9	3	27	81
20-21	5	2	10	20
18-19	5	1	5	5
16-17	6	0	0	0
14-15	1	-1	-1	1
12-13	0	-2	0	0
10-11	0	-3	0	0
8- 9	0	-4	0	0
6- 7	1	-5	-5	5
4- 5				
2- 3				
0- 1				
	31		52	176

$$M = \frac{\Sigma fx'}{N} \times i + A.O.$$

$$M = \frac{52}{31} \times 2 + 16.5$$

$$M = 19.86$$

$$S.D. = i\sqrt{\frac{\Sigma f(x')^2}{N} - \left(\frac{\Sigma fx'}{N}\right)^2}$$

$$S.D. = 2\sqrt{\frac{176}{31} - \left(\frac{52}{31}\right)^2}$$

$$S.D. = 2\sqrt{2.86}$$

$$S.D. = 3.38$$

Abstract Vocabulary Calculations

25th percentile

	f	x'	fx'	$f(x')^2$
24-25				
22-23				
20-21				
18-19	1	4	4	16
16-17	3	3	9	27
14-15	3	2	6	12
12-13	14	1	14	14
10-11	12	0	0	0
8- 9	4	-1	-4	4
6- 7	2	-2	-4	8
4- 5				
2- 3				
0- 1				
	39		25	81

$$M = \frac{\Sigma fx'}{N} \times i + A.O.$$

$$M = \frac{25}{39} \times 2 + 10.5$$

$$M = 11.78$$

$$S.D. = i \times \sqrt{\frac{\Sigma f(x')^2}{N} - \left(\frac{\Sigma fx'}{N}\right)^2}$$

$$S.D. = 2 \times \sqrt{\frac{81}{39} - \left(\frac{25}{39}\right)^2}$$

$$S.D. = 2 \times \sqrt{1.67}$$

$$S.D. = 2.58$$

Abstract Vocabulary Calculations

Correlation Coefficient

$$r = \frac{\frac{\Sigma fx'y'}{N} - \left(\frac{\Sigma fx'}{N}\right)\left(\frac{\Sigma fy'}{N}\right)}{\sqrt{\frac{\Sigma f(x')^2}{N} - \left(\frac{\Sigma fx'}{N}\right)^2} \times \sqrt{\frac{\Sigma f(y')^2}{N} - \left(\frac{\Sigma fy'}{N}\right)^2}}$$

$$r = \frac{\frac{753}{70} - (.80)(3.20)}{\sqrt{\frac{254}{70} - \left(\frac{56}{70}\right)^2} \times \sqrt{\frac{2670}{70} - \left(\frac{224}{70}\right)^2}}$$

$$r = \frac{7.17}{7.43}$$

$$r = .96$$

Abstract Vocabulary Calculations

Level of Significance

$$\text{S.E. of S.D.} = \sqrt{\text{S.D.}_1 + \text{S.D.}_2}$$

$$\text{S.E.} = \sqrt{3.38 + 2.58}$$

$$\text{S.E.} = 2.44$$

$$t_{.01} = \frac{\text{S.D.}_1 t_1 + \text{S.D.}_2 t_2}{\text{S.D.}_1 + \text{S.D.}_2}$$

$$t_{.01} = \frac{3.38 \times 2.75 + 2.58 \times 2.70}{3.38 + 2.58}$$

$$t_{.01} = 2.73$$

$$t = \frac{M_1 - M_2}{\text{S.E. S.D.}}$$

$$t = \frac{19.86 - 11.78}{2.44}$$

$$t = 3.31$$